

## MAXIMUM LIKELIHOOD DECODING FOR INPUT STREAMS CONTAINING KNOWN DATA

### 5 ABSTRACT

A method is described for decoding a signal in a noise environment using maximum likelihood soft decision decoding for input streams containing known data. ISI problems are ameliorated, and decoding is implemented by palmtop computers and devices of limited computational capability. Decoded signals make use of the (12, 8) Hamming Code for a MOBITECH application. A table with predetermined ISI values is downloaded from a host processor to an on-board DSP at runtime. Known information in the frame header is utilized to help determine unknown data. Decoding proceeds in one embodiment by finding codewords that minimize a sum corresponding to data values extracted from header information.

10 Other tables generated for use contain soft decision information and FEC words. Minimizing data translation by using known data and other embodiments advantageously minimize computational resources required to decode data by maximum likelihood soft decision decoding.

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